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VII. *A Letter from W. Watſon, F. R. S. to Francis Wollaſton, Eſquire, F. R. S. concerning a large Stone found in the Stomach of a Horſe.*

S I R,

*Read Jan. 31.
1744.*

I Hereby do myſelf the Pleaſure of ſending you a few Obſervations upon the *Calculus* you favour'd me with the Examination of. You inform'd me, that it was found in the Stomach of a Coach-Horſe in *July* laſt; and that it then weigh'd 3 Pounds two Ounces and half *Averdupois*. You likewise mentioned, that the poor Creature was obſerved frequently to be in violent Pain; and would ſometimes eagerly turn his Head to one of his Sides, and ſometimes to the other, as though he endeavour'd to bite out that which annoyed him; and that he died, after having taken various Remedies, which the Farriers adminiſter'd. When I weigh'd this Stone about ten Days ago, its Weight was 2 Pounds and 3 Quarters of an Ounce; ſo that, in about half a Year, it had loſt 1 Pound 1 Ounce and 7 Eighths. The Figure of it is ſpheroidal, as theſe Sort of Stones generally are; its Periphery 17 Inches and $\frac{1}{4}$, by 16 Inches and half; which are very near the ſame Dimensions this Stone had when firſt found. The Surface of it irregular, ſomewhat reſembling the Inequalities obſerved upon the Surface of the Brain; all the projecting Parts of which are poliſhed, from their Friction againſt the Sides of the Stomach. It is of a dark-brown bilious Colour, and very like to a
Species

Species of *Pyrites*; infomuch that, unless it were taken in the Hand, whereby their specific Gravities may be determined, it might pass for one of that Family; altho' this Stone is by much the most specifically heavy I ever saw of this sort.

I imagine, that, a considerable Time before the Horse died, by some Accident this Stone received a great Blow; for there appears to have been a Piece broken out; and there are two large Cracks not yet fill'd up; near which terminate several concentric Circles. This Stone seems to involve a smaller one, altho' no-where perfectly separated from it; but the outward is by much the hardest. In the Centre are two Holes, in which may be seen several Hairs of the Horse; but I have not been able to find any other extraneous Body, upon which these *Calculi* are usually formed.

Having, from sawing the Stone, a Quantity of its Powder, I was induced to an Inquiry into its constituent Parts by way of Analysis.

I first let fall two small Pieces of this Stone into Water almost boiling: They immediately sunk, but arose again, and continued alternately rising and sinking a considerable time. This was occasioned by the Quantity of Air-Bubbles, which the Heat rarefy'd; but the Air was detain'd by the *Mucus*, which seemed to connect the Particles of the Stone together; and which, tho' diluted by the hot Water, was tenacious enough to form Bubbles of Size sufficient to buoy up the Pieces of Stone; the Rarefaction growing greater, the Bubbles burst, and the Stone fell to the Bottom; but arose again, in like manner, at the Expulsion of more Air. The learned Dr. *Hales* likewise

wife found great Quantities of Air in the human *Calculus*.

I infused two Drams of this Powder in two Ounces of boiling Water : This Infusion I filtered when cold. It was of a light-brown Colour, and of a bitterish saline Taste. I calcined what remained of the Powder after the Infusion, till the Whole was black, and then it weighed a Dram and three Grains. I made the following Trials with the Infusion.

1. Mixed with Syrup of Violets, it became green.
2. With Oil of Tartar, the Colour was deeper without Ebullition, but the Mixture sent forth immediately a strong urinous Smell; the same Smell arose from rubbing some of the Powder with Oil of Tartar.
3. With Oil of Vitriol, and Spirit of Salt, it lost its Colour; but no Ebullition ensued.
4. With a Solution of Sublimate in Water, the Mixture curdled, and let fall a light-grey Sediment, leaving the Liquor quite transparent.
5. With a Solution of Sublimate in Lime-Water, the Mixture grew turbid, and let fall a deep-yellow Sediment, in a much greater Quantity, and of a deeper Colour, than a Solution of Sublimate and Lime-Water alone.

From these Inquiries it appears, that the Stone is compounded of an Earth, Air, *Mucus* of the Stomach, and a saline Principle bearing great Resemblance to *Sal Ammoniac*.

If these Hints meet with your Approbation, I shall think it a sufficient Recompence for the Trouble I have taken; and am, with great Respect,

S I R,

Your most Obedient,

Aldersgate-Street, Jan. 26,

1744.

Humble Servant,

W. Watfon.

VIII. *Extract of a Letter from Bombay, dated January 23. 1743-4. communicated by Francis Woolaston, Esquire, F. R. S. of a Porcupine swallowed by a Snake.*

Read Jan. 31.
1744.

SOME time ago there was found, on an Island adjacent to this, a large Snake, dead, with a Porcupine in its Belly. Perhaps you may not know, that a Snake always sucks in its Food by degrees. This had seized the Porcupine by the Head; and had so sucked it in. When it was quite in, the Quills, which were flatted down whilst it was going in, rose; ran through the Snake's Belly; and killed it: So that there was a monstrous large Snake dead, with the Quills of a Porcupine sticking out of it in many Places.